

### 9.3 Perform Reflections

We already discussed reflecting in the x and y axis.

What happens to the coordinates when you reflect in ....

x-axis?  $(x, y) \rightarrow (x, -y)$

y-axis?  $(x, y) \rightarrow (-x, y)$

Let's reflect in the line  $y=x$ .

A(-5,6)

$A'(6, -5)$

gsp

Conclusions about Reflections

If (a, b) is reflected in x-axis, its image is  $(a, -b)$

If (a, b) is reflected in y-axis, its image is  $(-a, b)$

If (a, b) is reflected in  $y=x$ , its image is  $(b, a)$

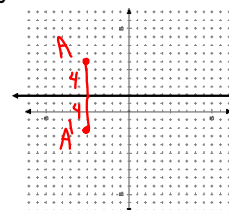
If (a, b) is reflected in  $y=-x$ , its image is  $(-b, -a)$

Reflect a point in a vertical or horizontal line.

A(-5, 6)

Reflect in the line  $y = 2$

$A'(-5, -2)$

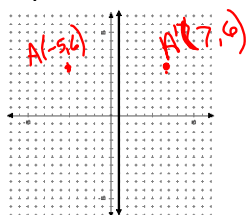


Reflect a point in a vertical or horizontal line.

A(-5, 6)

Reflect in the line  $x = 1$

$A'(7, 6)$

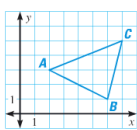


HW

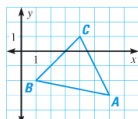
p593 #s 3, 5, 9, 11, 22

**REFLECTIONS** Graph the reflection of the polygon in the given line.

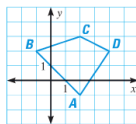
3.  $x$ -axis



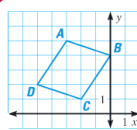
9.  $y = x$



11.  $y = x$



5.  $y = 2$



**TWO REFLECTIONS** The vertices of  $\triangle FGH$  are  $F(3, 2)$ ,  $G(1, 5)$ , and  $H(-1, 2)$ . Reflect  $\triangle FGH$  in the first line. Then reflect  $\triangle F'G'H'$  in the second line. Graph  $\triangle F'G'H'$  and  $\triangle F''G''H''$ .

22. In  $y = 2$ , then in  $y = -1$

Attachments

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9\_3notes\_examples.gsp